Human leukocyte antigen supertype matching after myeloablative hematopoietic cell transplantation with 7/8 matched unrelated donor allografts: a report from the Center for International Blood and Marrow Transplant Research

Aleksandr Lazaryan,[1] Tao Wang,[2] Stephen R. Spellman,[3] Hai-Lin Wang,[2] Joseph Pidala,[4] Taiga Nishihori,[4] Medhat Askar,[5] Richard Olsson,[6] Machteld Oudshoorn,[7] Hisham Abdel-Azim,[8] Agnes Yong,[9] Manish Gandhi,[10] Christopher Dandoy,[11] Bipin Savani,[12] Gregory Hale,[13] Kristin Page,[14] Menachem Bitan,[15] Ran Reshef,[16] William Drobyski,[17] Steven GE Marsh,[18] Kirk Schultz,[19] Carlheinz R. Müller,[20] Marcelo A. Fernandez-Viña,[21] Michael R. Verneris,[1] Mary M. Horowitz,[2] Mukta Arora,[1] Daniel J. Weisdorf,[1] and Stephanie J. Lee[22]

[1]University of Minnesota Medical Center, Fairview, Minneapolis, MN, USA; [2]Center for International Blood and Marrow Transplant Research, Milwaukee, WI, USA; [3]Center for International Blood and Marrow Transplant Research, Minneapolis, MN, USA; [4]H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL, USA; [5]Baylor University Medical Center, Dallas, TX, USA; [6]Karolinska University Hospital, Centre for Allogeneic Stem Cell Transplantation, Stockholm, Sweden; [7]Leiden University Medical Centre, The Netherlands; [8]Children's Hospital of Los Angeles, CA, USA; [9]Royal Adelaide Hospital / SA Pathology, Australia; [10]Mayo Clinic, Rochester, MN, USA; [11]Cincinnati Children's Hospital Medical Center, OH, USA; [12]Vanderbilt University Medical Center, Nashville, TN, USA; [13]All Children's Hospital, St. Petersburg, FL, USA; [14]Duke University Medical Center, Pediatric Blood and Marrow Transplant, Durham, NC, USA; [15]Tel-Aviv Sourasky Medical Center, Israel; [16]Columbia University Medical Center, New York, NY, USA; [17]Froedtert Memorial Lutheran Hospital, Milwaukee, MN, USA; [18]Anthony Nolan Research Institute & University College London Cancer Institute, Royal Free Campus, UK; [19]British Columbia's Children's Hospital, Vancouver, British Columbia, Canada; [20]Zentrales Knochenmarkspender-Register Deutschland, Ulm, Germany; [21]Stanford University Medical Center, CA, USA; and [22]Fred Hutchinson Cancer Research Center, Seattle, WA, USA

Supplemental Table. HLA class I and II supertype assignment algorithm for the study-specific single-allele mismatched unrelated donor allografts

HLA class I/II	Supertypes	Individual HLA alleles
HLA-A	A01	*01:01, 26:01, 26:02, 30:02, 30:04, 32:01; **01:03, 26:07, 26:08, 36:01; ***25:01, 32:08, 80:01
	A01 A03	*30:01; ***68:07
	A01 A24	*29:02; **29:01
	A02	*02:01, 02:02, 02:03, 02:05, 02:06, 02:07, 02:17, 68:02, 69:01;**02:11, 02:13, 02:16, 02:20, 02:24, 02:27, 02:30, 02:38, 02:77; ‡02:08
	A03	*03:01, 11:01, 31:01, 33:01, 33:03, 66:01, 68:01, 74:01; **03:02, 11:02, 11:04, 31:09, 33:04, 33:05, 34:02, 66:02, 68:03, 74:02, 74:03; ***68:05; ‡01:02, 31:02, 34:01, 34:05
	A24	*23:01, 24:02; **24:03, 24:09, 24:23, 24:35; ***24:25; ‡24:07, 24:14, 24:32
HLA-B	B07	*07:02, 07:05, 35:01, 35:03, 42:01, 51:01, 51:02, 53:01, 54:01, 55:01, 55:02, 56:01, 67:01, 78:01; **07:04, 07:06, 35:08, 35:14, 35:31, 35:41, 35:43, 35:55, 39:10, 51:05, 51:08, 51:09, 53:06; ***07:07, 35:02, 35:04, 35:05, 35:12, 35:17, 51:04, 51:13, 81:01; ‡15:29, 15:11, 35:20, 42:02
	B08	*08:01; **08:09, 08:13; ***08:04
	B27	*14:02, 15:03, 15:09, 15:10, 15:18, 27:02, 27:03, 27:04, 27:05, 27:06, 27:07, 38:01, 39:01, 39:02, 39:09, 48:01, 73:01; **14:01, 38:09, 40:12, 48:02, 48:03; ***15:23, 39:05, 39:06, 39:08, 39:24; ****38:02; ‡35:16
	B44	*18:01, 37:01, 40:01, 40:02, 40:06, 44:02, 44:03, 45:01; **18:03, 40:05, 40:11, 41:02, 44:04, 44:27, 50:01, 50:02; ***18:14, 40:03, 40:42, 41:01, 44:05; ‡59:01, 13:04, 15:71, 18:04, 18:08, 40:08, 40:27, 44:10, 47:01, 47:02, 49:01, 51:07
	B58	*15:16, 15:17, 57:01, 57:02, 58:01, 58:02; **57:03; ***57:04
	B62	*15:01, 15:02, 15:12, 15:13, 46:01, 52:01; **15:05, 15:15, 15:19, 15:25, 15:30, 52:04; ***15:04, 15:07, 15:24, 15:35, 15:58, 15:73, 44:08; ‡13:01, 13:02
HLA-C	C1	01:02, 03:02, 03:03, 03:04, 03:05, 03:06, 03:08, 03:09, 07:01, 07:02, 07:04, 07:06, 07:12, 07:15, 07:18, 07:21, 07:27, 08:01, 08:02, 08:03, 08:04, 08:10, 08:22, 12:02, 12:03, 12:13, 14:02, 14:03, 15:07, 16:01, 16:04
	C2	02:02, 02:03, 02:06, 02:10, 02:19, 03:07, 04:01, 04:03, 04:04, 04:05, 04:13, 05:01, 05:09, 05:13, 06:02, 06:07, 07:07, 12:05, 14:04, 15:02, 15:03, 15:04, 15:05, 15:06, 15:09, 15:11, 15:13, 16:02, 17:01, 17:03, 18:01, 18:02
HLA-DRB1	DR1	15:01, 15:02, 15:03, 15:04, 16:01, 16:02
	DR3	03:01, 03:02, 03:05, 03:15, 07:01
	DR4	04:01, 04:03, 04:04, 04:05, 04:06, 04:07, 04:08, 04:10, 04:11, 14:01, 14:02, 14:04, 14:05, 14:06, 14:07, 14:24, 14:54
	DR5	01:01, 01:02, 01:03, 04:02, 08:01, 08:02, 08:03, 08:04, 08:06, 08:10, 08:11, 08:13, 10:01, 11:01, 11:02, 11:03, 11:04, 11:05, 11:15, 11:16, 12:01, 12:02, 13:01, 13:02, 13:03, 13:04, 13:05
	DR9	09:01

Note: HLA-A and –B supertypes were primarily assigned according to the revised classification (Sette and Sidney, 2008); HLA-C and -DRB1 supertypes were assigned based on clustering analysis of in-silico data (Doytchinova, 2004-05); *experimentally established specificities indicating the most stringent assignment; **exact B and F residue pocket matches; ***one exact and one key residue pocket matches; ****key residue matches at B and F pockets; ‡assigned based on bioinformatics/hierarchical clustering methods